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| 10/069,047   | 02/21/2002  | Katsuya Sakayori     | 123801              | 9304             |
| 25944 7590 04/20/2009<br>OLIFF & BERRIDGE, PLC<br>P.O. BOX 320850<br>ALEXANDRIA, VA 22320-4850 |             |                      |                     |                  |
| EXAMINER   |             |                      |                     |                  |
| HAIDER, SAIRA BANO   |             |                      |                     |                  |
| ART UNIT   |             | PAPER NUMBER         |                     |                  |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/069,047

**Applicant(s)**

SAKAYORI ET AL.

**Examiner**

SAIRA HAIDER

**Art Unit**

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 February 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 42-44-48, 50-55 and 57-65 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 42-44-48, 50-55 and 57-65 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 02/19/2009 has been entered.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 42, 44, 45, 47, 48, 50-55, 57-65 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Okamoto et al. (US 5,621,068).

4. The claims given their broadest reasonable interpretation consistent with the specification require a first insulating layer having at least a first and second resin layer, wherein the claims allow for the two adhesive layers (provided on both sides of the core insulating layer) to be the first and second resin layers. Further the claims also allow for the claimed core insulating and adhesive layers to be the first and second resin layers, respectively.

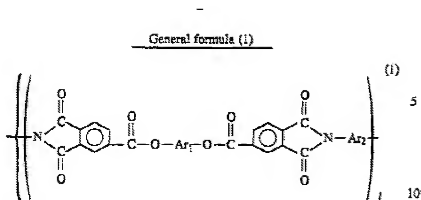
5. Okamoto discloses both of these interpretations. In reference to the first interpretation, Okamoto discloses a polyimide laminate comprising thermoplastic polyimide polymer layers being laminated on both surfaces of a non-thermoplastic polyimide film. Thus, Okamoto discloses a base film (reads on the claimed core insulating layer) coated on both sides with an adhesive-agent layer

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consisting of the inventive thermoplastic polyimide polymer layer (reads on the claimed adhesive layers which are the first and second resin layers). Okamoto discloses the laminate can be used for the base film of a cover-lay film having adhesive-agent layer and a flexible copper-coated laminated board (col. 30, lines 15-30). Thus, Okamoto discloses the copper foil layer (reads on the claimed inorganic layer) bonded to the adhesive-agent layer (col. 30, lines 15-30).

6. In reference to the second interpretation, Okamoto discloses that the inventive thermoplastic polyimide film can serve as the base film (reads on the core insulating layer as the first resin layer) to be laminated with the inventive thermoplastic polyimide film (reads on the adhesive as the second resin layer) and then laminated with copper foils to produce a double-layer flexible copper-coated laminate devoid of the adhesive-agent layer (col. 21, lines 28-34). Wherein the adhesive-agent is applied to both sides of the base film, i.e. bilateral, to form the copper-coated laminates (col. 20, lines 33-37; col. 21, lines 16-20).

7. The inventive thermoplastic polyimide polymer layer is formed of a polyimide resin comprising repeat units of:



Wherein, Ar<sub>1</sub> and Ar<sub>2</sub> are divalent organic radicals (abstract; col. 2, line 59 to col. 3, line 43).

8. Thus, the Okamoto reference discloses the claimed polyimide film comprising the first insulating layer (as per herein claims 42 and 64). Okamoto exemplifies peeling strengths of greater than 300 g/cm (0.3kg/cm) (Table 1).

9. Since the first and second resin layers of Okamoto are the same, then the etching rate of the first and second resin layers will be the same, i.e. an etching ratio of 1:1. Further, in reference to the claimed shape control of an edge of the laminate after etching, Okamoto discloses that the perforations are formed in the inventive thermoplastic polyimide polymer layer via etching (col. 21, lines 49-51; Figure 2; col. 22, lines 60-64). Thus it is clear the etching of Okamoto results in the formation of a shape. Since, the etching ratio of the first and second resin layers is the same, then it is clear that an edge will not be formed and the shape of the edge will be controlled.

10. Since the prior art teaches the identical chemical structures of the layers comprising the claimed first and second resin layers (General Formula (I) of Okamoto), the properties applicant claims (etching rate with alkali-aliphatic amine solution, etching rate ratios, and shape control of an edge after etching) are necessarily present. *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). The burden shifts to the applicant to show an unobvious difference. Note that because the reference does not expressly teach or address the properties of the claimed invention, does not mean that the properties are not inherently disclosed. Disclosing the same compound(s) inherently discloses the corresponding properties. The references cannot possibly address all of the properties, but implicitly all of the properties are present.

11. Claims 52-54 and 61-63 are recognized as product-by-process claims, wherein even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product

of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP § 2133.

12. Wherein the claimed product appears to be the same or similar to that of the prior art, although produced by a different process. The Okamoto flexible printed circuit boards are produced by an alkaline etching process (col. 21, lines 49-56). Okamoto fails to disclose that wet etching is utilized, however, since the resulting laminate of the prior art and that claimed comprise the identical chemical structures in each of the layers, the prior art product is deemed to be the same as or similar to the claimed product. The Okamoto reference fails to employ inorganic nitride or inorganic fluoride layers, thus, it is the examiner's position that the reference teaches the absence of such layers.

13. In reference to the claims drawn to a suspension for a hard disk drive, these limitations in the preamble reciting the intended use of the claimed invention have been evaluated to determine whether the intended use results in a structural difference between the claimed invention and the prior art. It is the examiners position that a structural difference does not exist. Specifically, the Okamoto product does not structurally differ from the claimed product. Therefore, since a prior art structure is capable of performing the intended use as recited in the preamble, then it meets the claim. See, e.g., *In re Schreiber*, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1431 (Fed. Cir. 1997).

14. In regards to the 103 rejection of the claims, as noted above, the claimed property of etching rate ratios is considered inherent to the product of Okamoto. However, the presently claimed function of etching ratios would obviously have been present once the Okamoto laminate is provided. *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1997).

***Claim Rejections - 35 USC § 103***

15. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

16. Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okamoto et al. (US 5,621,068).

17. Okamoto fails to disclose the thickness ratio of the core insulating layer to each of the adhesive layers; however Okamoto recognizes that the thickness of the adhesive component of the cover layer film alters the performance of the flexible printed circuit board. Thus, the claimed thickness ratios are rendered result effective variables because changing them will clearly affect the type of product obtained. See MPEP § 2144.05 (B). Case law holds that “discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art.” See *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

18. In view of this, it would have been obvious to one of ordinary skill in the art to control and modify the thickness ratios and utilize ratios of at the least 1:1 in order to produce a desired flexible printed circuit board.

***Response to Arguments***

19. Applicant has essentially argued that the rejection is invalid because Okamoto does not disclose the shape control based on the etching rate as claimed. In response, as noted above, since the first and second resin layers of the laminate of Okamoto are identical, then the etching rates will be identical and the shape control will be present. The examiner has considered Figure 1 and recognizes that the etching rate of the adhesive insulating layer and the core insulating layer are different thus resulting in the lack of shape control at the edge. However the Okamoto reference

discloses that the core insulating layer and the adhesive insulating layer can be the same, therefore the lack of shape control at the edge would not be an issue in the invention of Okamoto.

20. Applicants have attempted to refute the inherency argument by alleging the imidization rate the crystallinity vary the properties of the polyimide film and therefore the etching rates are not inherent. The examiner has considered the evidence provided and concludes that it is insufficient to overcome the inherency rejection. As per MPEP § 2112(V), the burden shifts to the applicant to show an unobvious difference, wherein it is necessary that applicant prove that the prior art products do not necessarily or inherently possess the characteristic of the claimed product. Applicants have failed to provide evidence showing that the product of Okamoto does not necessarily possess the claimed characteristic, i.e. "a etching ratio of from 4:1 to 1:1." In the absence of evidence supporting applicants conclusion of a difference between the claimed product and the prior art product, the rejection is maintained and rendered valid. Additionally, since the first and second resin layers of the prior art are the same and processed under the same conditions, then the etching rates will be the same, thus the etching ratio will be 1:1.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SAIRA HAIDER whose telephone number is (571)272-3553. The examiner can normally be reached on Monday-Friday from 10am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/James J. Seidleck/  
Supervisory Patent Examiner, Art Unit 1796

Saira Haider  
Examiner  
Art Unit 1796